

ORIGINAL ARTICLES

Seeing, wanting, owning: the relationship between receptivity to tobacco marketing and smoking susceptibility in young people

Ellen Feighery, Dina L G Borzekowski, Caroline Schooler, June Flora

Abstract

Objective—To assess the effect of the tobacco industry's marketing practices on adolescents by examining the relationship between their receptivity to these practices and their susceptibility to start smoking.

Design—Paper-and-pencil surveys measuring association with other smokers, exposure to tobacco industry marketing strategies, experience with smoking, and resolve not to smoke in the future.

Setting—25 randomly selected classrooms in five middle schools in San Jose, California.

Subjects—571 seventh graders with an average age of 13 years and 8 months; 57% were female. Forty-five per cent of the students were Asian, 38% were Hispanic, 12% were white, and 5% were black.

Main outcome measures—Exposure to social influences, receptivity to marketing strategies, susceptibility to start smoking.

Results—About 70% of the participants indicated at least moderate receptivity to tobacco marketing materials. Children who are more receptive are also more susceptible to start smoking. In addition to demographics and social influences, receptivity to tobacco marketing materials was found to be strongly associated with susceptibility.

Conclusions—Tobacco companies conduct marketing campaigns that effectively capture teenage attention and stimulate desire for their promotional items. These marketing strategies may function to move young teenagers from non-smoking status toward regular use of tobacco. Our results demonstrate that there is a clear association between tobacco marketing practices and youngsters' susceptibility to smoke. The findings, along with other research, provide compelling support for regulating the manner in which tobacco products are marketed, to protect young people from the tobacco industry's strategies to reach them.

(*Tobacco Control* 1998;7:123-128)

Keywords: adolescents, advertising, smoking initiation

Introduction

PURPOSE OF THE STUDY

In 1996, the US Food and Drug Administration issued regulations designed to reduce the illegal sale of tobacco products to young people and to reduce the appeal of tobacco use by restricting the manner in which the tobacco industry markets its products.¹ In his State of the Union address on 4 February 1997, President Clinton affirmed his administration's resolve to ban the advertising and marketing of cigarettes to young people.² These dramatic actions reflect the wide citizen concern about tobacco use in teenagers and the perceived actions of the tobacco industry to promote its products to children.^{3 4}

Federal recognition and response are appropriate given the current situation. Teenage smoking rates in the United States have been rising over the past four years after a decade of relative stability; smoking rates for high school students rose from 27.5% in 1991 to 34.8% in 1995.⁵

Given the high level of awareness about the dangers of tobacco, why are teenagers smoking in ever greater numbers? Many cite tobacco advertising as a major contributor to this increase.^{3 4} The amount being spent by this industry in the United States has more than doubled in a 10-year period, rising to 4-6 billion dollars in recent years.⁶ As a result, young people see tobacco advertising messages everywhere: on billboards, in stores, in magazines, on clothing, and at community events.⁷ These ubiquitous images and messages serve as symbolic social influences by conveying to young people that tobacco use is desirable, socially acceptable, safe, healthy, and prevalent in society.⁸

In an earlier study, we found a significant association between seventh graders' (aged 12-13) perceived exposure to tobacco advertising and promotions and their experimentation with smoking. This raised the question of whether there might be a relationship between interest and desire for tobacco marketing materials and young people's susceptibility to smoke—that is, would we find that children who are more receptive to tobacco marketing materials also are more susceptible to smoking?

The goal of the current study is to assess the effect of the tobacco industry's marketing practices on young adolescents by examining

Stanford Center for Research in Disease Prevention, Stanford University School of Medicine, Palo Alto, California, USA
E Feighery
D L G Borzekowski
C Schooler
J Flora

Correspondence to:
E Feighery, Stanford Center for Research in Disease Prevention, Stanford University School of Medicine, 1000 Welch Road, Palo Alto, California 94304-1825, USA.
feighery@scrdp.stanford.edu

the relationship between young people's receptivity to tobacco marketing strategies and their susceptibility to smoke, while controlling for particular demographics and the social influences of peers and parents who smoke. In this section, we present the framework for the study by reviewing the marketing strategies used to promote cigarettes, teenagers' receptivity to these strategies, and its relationship to their smoking susceptibility.

MARKETING OF CIGARETTES

Marketing is used to influence consumer behaviour by signalling how a product meets a perceived need. Advertising, such as tobacco advertisements on billboards and in stores, is designed to influence consumer knowledge, attitudes, and beliefs about a product. Promotions, such as t-shirts and lighters emblazoned with brand logos, are intended to stimulate consumer action toward the use of the product. A mix of these marketing types is intended to move consumers through a sequential decision-making process that ultimately leads to selection and regular use of the product.⁹

The decision to use a particular product generally includes the following steps: (a) awareness of, interest in, and shifting attitudes toward a product; (b) desire and intentions to use the product; (c) experimentation with the product; and finally, (d) regular use.¹⁰ It is interesting to note that there are similarities between the process articulated in the marketing literature and the stages of smoking initiation by young people that have been identified in several tobacco prevention research studies: (a) a preparatory stage in which attitudes and beliefs about the benefits and desirability of smoking are consolidated; (b) first attempts at smoking to conform with perceived norms; (c) irregular, experimental use; and finally, (d) addiction.^{11 12}

Tobacco companies use a sophisticated blend of advertising and promotions to effectively communicate the symbolic social value of tobacco use. Symbolic social influences that are behavioural depicitors in mass media have been found to play an important role in shaping adolescent tobacco use.^{13 14} Effective advertising is imbedded with product symbolism intended to stimulate particular behaviours. Clothing and other promotional items are intended to serve as a clear link between "me" and the role "I" wish to play.¹⁵ The tobacco industry's advertising and promotional products are replete with messages and images that reflect the qualities teenagers value, such as popularity, independence, sexiness, and "coolness". The marketing approaches imply that these qualities can be achieved by using their tobacco products.

The tobacco companies' multibillion dollar efforts seem to guide children through a psychological process of product attachment, the outcome of which may increase their susceptibility to smoking. Their advertisements may shift young people's attitudes and beliefs to view smoking as a means to acquire the above valued qualities. Their promotions

may entice them to try on the image of a smoker, which also may resonate with their desired self-image. Their trading stamps, such as Marlboro Miles and Camel Cash, may reflect the companies' intent to stimulate repeat purchases to build allegiance to their products. This is not a surprising goal because brand loyalty has been found to be established with the first cigarette.¹⁶

TEENAGERS' RECEPTIVITY TO TOBACCO INDUSTRY MARKETING

An understanding of consumers is a critical element in the development of marketing strategies. In the past several years, internal tobacco industry documents confirm that manufacturers conducted extensive research on teenage behaviour and attitudes, and used this information to design tobacco marketing that appeals to young people's psychosocial needs and the stages of initiation of smoking.¹⁷

To determine if the tobacco industry's marketing efforts are reaching teenagers, we have developed a receptivity scale. This scale approximates the stages in decision-making processes involved with product use that were discussed above. Our first level, "See", reflects awareness of tobacco advertising in various venues such as billboards and magazines. Our second level, "Want", captures aroused interest in and desire for tobacco products, which is reflected in the acquisition of catalogues, mailings, and trading stamps, such as Marlboro Miles or Camel Cash. Our third level, "Own", reflects the teenager's identification with the product by trying on the smoker identity via the use of promotional items. Therefore, an assessment of receptivity provides a good indicator of the impact of the tobacco industry's marketing strategies on young people.

SUSCEPTIBILITY TO START SMOKING

In this study, we examine the association between teenagers' receptivity to tobacco marketing as described above, and their susceptibility to start smoking. As mentioned earlier, we believe that teenagers do not move in one step from non-smoking to smoking, but rather, proceed through various stages of smoking initiation. Young people are considered more susceptible to smoke if there is an absence of a clear resolve not to smoke in the future; this increases their vulnerability to personal, social, and environmental factors that may prompt experimentation with smoking.¹⁸ Two longitudinal studies have concluded that susceptibility is a significant predictor of smoking initiation in adolescents.^{19 20} Other studies of susceptibility have found associations between levels of susceptibility and liking of advertisements²¹; awareness of and involvement with tobacco promotional items^{22 23}; and receptivity to tobacco advertising.²⁴

If we are to succeed in reversing the upward trend in teenage smoking, we need to understand the effect of the tobacco industry's ubiquitous marketing practices on young people to help us understand how a teenager moves from being a non-smoker to a smoker. This study seeks to add to this understanding by

looking at the association between teenagers' receptivity to marketing and their smoking susceptibility.

Methods

DESIGN

Within intact classrooms, the subjects completed pencil-and-paper questionnaires as part of a larger survey on cigarette advertisements and promotional material. For this study, we assessed the youngsters' association with other smokers, receptivity to the tobacco industry's marketing strategies, and their own experience with, and resolve to smoke or not smoke, cigarettes.

SUBJECTS

This study was conducted with 571 seventh-grade students from five middle schools in San Jose, California. Data collection occurred in 25 randomly selected classrooms and active parental permission was obtained for each student before participation in the study. Fewer than 5% of parents refused to provide permission. The average age of the participating seventh-graders was 13 years and 8 months, and 57% of the sample was female. Forty-five per cent of the students sampled were Asian, 38% were Hispanic, 12% were white, and 5% were black.

MAIN OUTCOME MEASURES

Receptivity to marketing strategies

To determine a youngster's level of receptivity to the tobacco industry's marketing strategies, we measured a child's exposure by using the categories See, Want, and Own. These represent a range of receptivity, from low to high, of how responsive or receptive one is to cigarette advertisements and promotions. We assigned students to See if they answered that they sometimes or often saw cigarette advertisements in magazines, on billboards, or at fairs or community events. Students who frequented small groceries, convenience stores, or liquor stores (off licences) were assigned to See, because these types of retail outlets are often replete with pro-smoking messages.²⁵ Students were assigned to Want if they qualified for See *and* had received a mailing from a cigarette company, saved Camel Cash or Marlboro Miles, had a tobacco company promotional catalogue, or indicated a desire for a promotional item from a cigarette company. To be assigned to Own, students not only had to qualify for Want *but also* had to indicate that they owned a promotional item from a cigarette company.

See indicates a low level of receptivity to cigarette advertisements where young people acknowledge awareness of pro-smoking messages in a variety of settings. Want and Own indicate receptivity to the tobacco company promotional strategies as respondents move beyond awareness to a stage of desire to possess tobacco promotional items.

Social influence

Students were asked to indicate whether their friends and family members smoked cigarettes to assess the impact of social influences on

their susceptibility to start smoking. Previous research indicates that peer and parental smoking are predictors of teenage smoking.^{26 27} The seventh-graders in this study were placed into one of four groups ranging from those who indicated no social contact with smokers to those who indicated a great deal of social contact with smokers. The groups were: (a) non-smoking family and friends, (b) parental smoking, (c) friends smoking, and (d) smoking families and friends.

Susceptibility

Lastly, students were categorised by their susceptibility to start smoking—a measure representing smoking experience and resolutions about smoking. To determine susceptibility to start smoking, students provided answers to questions about their experience with smoking and their resolve not to smoke in the future. To assess experience, students responded to the question: "Have you ever tried or experimented with cigarette smoking, even a few puffs?" Therefore, experience represented a minimal amount of actual smoking. In measuring their resolve not to smoke, we considered student responses to the following questions: "Do you intend to try a cigarette soon?", "At any time during the next year, do you think you will smoke a cigarette?", and "If one of your best friends were to offer you a cigarette, would you smoke it?" We then created three susceptibility categories: (a) No experience and resolve not to smoke; (b) Experience and resolve not to smoke; (c) Experience and no clear resolve not to smoke. Students who responded "yes" to either "Have you ever smoked a cigarette every day for at least a month?" or "Do you smoke now?" were classified as current smokers and excluded from these analyses focusing on susceptibility to start smoking.

ANALYSIS

Because we were considering several categorical variables, we determined if there were significant associations by considering the χ^2 statistics at a $p < 0.05$ level. We looked at the associations between gender, ethnicity, social influence, receptivity to cigarette advertisements and promotions, and susceptibility. In addition, we applied a proportional odds model to estimate the effects of these variables (gender, ethnicity, social influence, and receptivity) on influencing the odds of being susceptible to smoking. Used in a recent study on susceptibility, the proportional odds model is an appropriate and worthwhile method to use because it takes into account the underlying rank order of the categorical dependent variable.^{28 29}

Results

Table 1 shows the three levels of receptivity to tobacco marketing strategies that were used to stratify survey respondents and the distribution of the respondents into these categories. Almost a third of the sample were in See, 46% were in the Want, and 24% were in the Own category. Only three children (0.5% of the sample) indicated that they had never seen any tobacco advertisements or promotions or

Table 1 Receptivity to the tobacco industry's marketing strategies

	n	%
<i>See (receptivity level 1)</i>	171	30
Sometimes see cigarette advertisements in magazines, sometimes see cigarette advertisements on billboards, sometimes go to small grocery stores, convenience stores, or liquor stores (off licences), or sometimes see cigarette advertisements at fairs or community events.		
<i>Want (receptivity level 2)</i>	263	46
Any of the items specified in See and have received a mailing from a cigarette company, have a Camel Cash or Marlboro Miles catalogue, save Camel Cash or Marlboro Miles, or indicate desire for a promotional item from a cigarette company.		
<i>Own (receptivity level 3)</i>	134	24
Any of the items specified from See and Want and own a promotional item from a cigarette company.		

Table 2 Relationship between sociodemographic factors, social influences, and receptivity with susceptibility

Variable	Category	n	Receptivity			χ^2	p<
			See %	Want %	Own %		
Gender	Boys	245	25.7	53.1	21.2	8.30	0.05
	Girls	320	33.4	40.9	25.6		
Ethnicity	White	64	46.9	39.1	14.1	30.29	0.001
	Black	30	16.7	56.7	26.7		
	Hispanic	211	18.5	52.6	28.9		
	Asian	248	36.3	41.5	22.2		
Social Influence	No-one	139	52.5	28.8	18.7	73.38	0.001
	Parents only	68	29.4	58.8	11.8		
	Friends only	130	22.3	43.9	33.9		
	Parents and friends	169	13.0	59.2	27.8		
Susceptibility	No experience/firm resolve	235	44.7	36.6	18.7	44.84	0.001
	Experience/firm resolve	119	34.5	42.0	23.5		
	Experience/no resolve	141	11.4	56.7	31.9		

Table 3 Proportional odds model for susceptibility: the effects of sociodemographic factors, social influences, and receptivity to the tobacco industry's marketing strategies

Variable	β	SE	p<	OR
Gender	-0.54	0.19	0.01	0.58
Black	-0.10	0.48	NS	0.90
Hispanic	0.93	0.30	0.01	2.53
Asian	0.30	0.29	NS	1.35
Parents but not friends smoke	0.11	0.30	NS	1.12
Friends but not parents smoke	1.09	0.25	0.001	2.98
Parents and friends smoke	1.66	0.24	0.001	5.23
Want	0.81	0.22	0.001	2.25
Own	0.85	0.25	0.001	2.35
Intercept 1	1.25	0.32	0.001	NA
Intercept 2	2.53	0.33	0.001	NA

Reference is a white male, whose parents and friends don't smoke, who is in the See receptivity group.

SE = standard error; OR = odds ratio; NS = not significant; NA = not applicable.

frequented places likely to display such items. We excluded these children from the subsequent analyses and results.

In table 2, the reported bivariate analyses reveal that boys ($\chi^2 = 8.30$, $p < 0.05$), and blacks and Hispanics ($\chi^2 = 30.29$, $p < 0.001$) were more likely to report higher levels of receptivity to marketing. In addition, those with more real-world social influences to smoke (having parents or friends who smoked, or both) also reported greater receptivity ($\chi^2 = 73.38$, $p < 0.001$). Among those who reported having neither smoking parents nor friends, more than half (52.5%) were in See, the lowest receptivity level. In contrast, among those who had parents and friends who smoked, only 13% were in See.

We classified 495 children into three susceptibility levels; the remaining children were either regular smokers ($n = 65$) or had missing data ($n = 11$). We observed a significant relationship between susceptibility and recep-

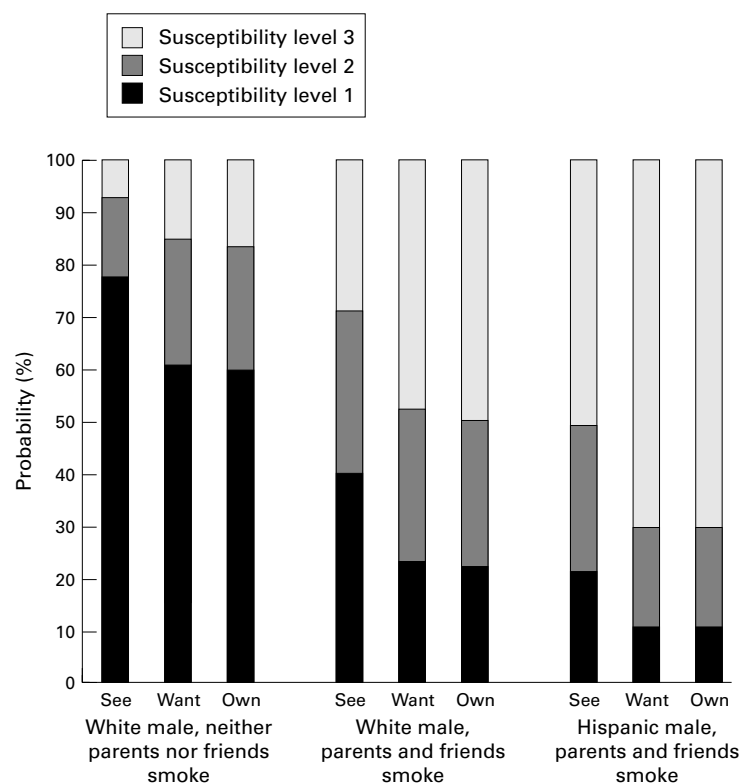
tivity ($\chi^2 = 44.84$, $p < 0.001$). Those with lower levels of receptivity to tobacco marketing were at the lower levels of smoking susceptibility. Of those seventh-graders who had no experience and a clear resolve not to smoke, 44.7% were in the See group. This contrasts sharply with those children who had experience with and lack of resolve not to smoke, of whom 11.4% were in the See group. The reverse occurs at the higher levels of receptivity where those less susceptible are the least likely to want or own promotional material, and the most susceptible are more likely to want or own such items.

In the proportional odds model, we observed that all the covariates, except some of the ethnicity dummy variables, were statistically significant. Beyond the significant role gender and ethnicity as well as parental and peer smoking played in predicting a teen's susceptibility, receptivity to tobacco marketing materials also increases the odds that one will smoke. As a group, the regressors predict susceptibility and we observed that the χ^2 of all the covariates is 130.28 ($df = 9$, $p < 0.0001$). The test for equality of slopes for these variables proved to be non-significant ($\chi^2 = 10.93$, $df = 9$, $p < 0.28$).

Table 3 presents the change in odds for being in the higher susceptibility levels. Considering our set of predictors, girls were less likely than boys to have experience with smoking or lack a clear resolve not to smoke, or both. The odds that a Hispanic child had experience or lack a resolve not to smoke, or both, were two and a half times greater than the odds for a white child. Having parents who smoked increased the odds by a factor of 1.12 and having friends who smoked increased the odds by 2.98. The combination of having parents and friends who smoke increased the odds that a child was more susceptible to 5.23. Being in the Want or Own receptivity level increased the odds of being susceptible at similar rates (approximately 2.30 times greater). The odds act in a multiplicative manner such that a Hispanic child whose parents and friends smoked had odds of being in higher susceptibility levels that were 13.23 times greater than if the child was white and had neither parents nor friends who smoked. If that same child owned tobacco promotional material, then the odds that he or she was susceptible would be 31.09 times greater than the odds for a child without these characteristics.

Using the estimated parameter coefficients and intercepts, we calculated fitted probabilities that given children would be in the different susceptibility groups (figure 1). Here, we see that it is highly probable ($p = 0.78$) that a white boy, whose parents or friends did not smoke, and is in the See category, is in the lowest susceptibility category (no smoking experience and has a clear resolve not to smoke). On the other hand, a Hispanic boy, whose parents and friends smoke, and is in the Own category, has a high probability ($p = 0.71$) of being in the highest susceptibility category (having experience and lacking a clear resolve to smoke in the future).

It should be noted that we also performed these analyses with current smokers included



Probability of being in susceptibility level 1, 2, or 3, based on predictors in proportional odds model.

as a fourth level to the susceptibility index. The results resemble those encountered in the level 3 susceptibility index, with similar significant bivariate relationships and significant variables in the proportional odds model.

Discussion

This study examines the relationship between receptivity to tobacco marketing materials and susceptibility to start smoking as reported by 571 seventh-graders. The results show that virtually all young people in the study were aware of tobacco advertising, in that more than 99% of them reported seeing tobacco advertising and promotions in a variety of venues. Remarkably, about 70% of the seventh-graders in this study population indicated a level of receptivity to tobacco marketing materials that is greater than the simple awareness of advertising and promotions. Most of these young people said that they received tobacco company mailings, saved Camel Cash or Marlboro Miles, wanted to own promotional items, or actually owned them.

Not surprising is the finding that the odds of being susceptible to smoking are greatly increased when a parent or friends smoke. This is consistent with other research findings, which have found that these social influences are important contributors to a teenager's decision to smoke.³⁰ What is very disturbing, however, is that the odds of being susceptible more than doubled for those in the Want and Own categories even when controlling for gender, ethnicity, and knowing others who smoke. Interestingly, mere desire (Want) for tobacco promotional items increased the odds of being

susceptible to smoking almost as much as actually owning them.

Equally disturbing are the findings on ethnicity. A Hispanic boy with family and friends who smoke and a high level of receptivity to tobacco marketing was 25% more likely than his white counterpart to be highly susceptible to smoking. We believe this finding warrants further study.

These findings indicate that the marketing campaigns designed by tobacco companies are extremely effective in capturing teenagers' attention and increasing desire for their promotional items. The findings also suggest that the tobacco industry is successfully using promotions to stimulate movement toward regular use of their products by providing young people with paraphernalia that allows them to take on the identity of a smoker.

A vast majority (almost 90%) of the adolescents who have experimented with smoking and lack a firm commitment not to smoke in the future also report much higher levels of receptivity to tobacco marketing in the forms of working toward the acquisition of promotional items by saving Camel Cash or Marlboro Miles, and ownership of these items. These findings demonstrate that the most susceptible teenagers are most receptive to using promotional items that may help them achieve the "smoker" identity. This is consistent with marketing theories mentioned previously which explain that promotions allow a consumer to "try on" an identity and are intended to move consumers closer to using a product.

Those who report being the least receptive to these materials (30%) are also less likely to be susceptible toward tobacco use. However, more than 50% of those with no experience and a clear resolve not to smoke, either want or own tobacco promotional items; this illustrates the obvious appeal of these materials. We suspect that this might be the first step in moving some of these young people along the continuum of decision making toward the use of their products. Only a longitudinal study would allow us to find this out.

There are several limitations to this study. This sample is drawn from two school districts in northern California and is more ethnically diverse than the American population, so it may not be generalisable to the general population. Another potential limitation is that these are self-reported data of exposure to marketing strategies, as well as experience in smoking and intent to smoke. Response bias is possible; however, prevalence rates observed here are similar to those reported in other research.³¹ Most importantly, these are cross-sectional data; therefore, a causal relationship between advertising and smoking behaviour cannot be determined. Although these data show that a relationship exists between receptivity and susceptibility, it is possible that susceptibility to smoke precedes interest in and receptivity to tobacco advertising. A well-controlled longitudinal study would identify which variable causes the other.

The findings of this study indicate that although parents and peers play a significant role in whether a teenager begins to smoke,

tobacco marketing materials may also have a strong influence. Previously confidential tobacco company records reveal that these companies studied teenagers and used this information to design marketing strategies to move them from non-smoking to smoking status. The results of this study confirm that the massive marketing efforts of the tobacco industry are in fact working: their advertising is noticed, and their promotional items are desired and owned by significant numbers of teenagers. Moreover, teenagers who are more receptive to the sophisticated marketing practices of the tobacco industry are more likely to report experimentation, intent to smoke, or regular use. These findings add to the growing body of research demonstrating the influence of tobacco marketing practices on youngsters' susceptibility to start smoking.

The results of the study provide a new framework on how to talk with young people about how the marketing strategies of the tobacco industry are designed to move them from non-smoking to smoking status. Of particular benefit is a discussion of the use of promotional items that may bring a consumer closer to the use of a product. In addition, the findings of this and other studies cited here provide compelling support for regulating and overseeing the manner in which tobacco products are marketed, to protect young people from the highly effective strategies of the tobacco industry to reach them.

This research was funded by a grant (22935) from the Tobacco Policy Research and Evaluation Program of the Robert Wood Johnson Foundation. The authors acknowledge Stacy Weinberg for participation in the development and implementation of this study, and Lani Shiota for assistance in conducting the research. We thank Pat Stelwagon of the Berryessa School District and Sandra Will of the Franklin McKinley School District for their encouragement and cooperation.

- 1 US Food and Drug Administration. Regulations restricting the sale and distribution of cigarettes and smokeless tobacco products to protect children and adolescents. *Federal Register* 1996;60(28 Aug):41454-41787.
- 2 Anon. We must be shapers of events, not observers. *Washington Post* 1997 Feb 5:A18.
- 3 US Department of Health and Human Services. *Preventing tobacco use among young people. A report of the Surgeon General, 1994*. Atlanta, Georgia: Public Health Service, Centers for Disease Control and Prevention, Office on Smoking and Health, 1994. (US Government Printing Office No S/N 017-001-00491-0.)
- 4 Institute of Medicine. *Growing up tobacco free: preventing nicotine addiction in children and youths*. Washington, DC: National Academy Press, 1994.
- 5 US Centers for Disease Control and Prevention. Tobacco use and usual source of cigarettes among high school students—United States. *MMWR* 1996;45:413-18.
- 6 US Federal Trade Commission. *Report to Congress for 1994. Pursuant to the Federal Cigarette Labeling and Advertising Act*. Washington, DC: Federal Trade Commission, 1996.
- 7 Schooler C, Feighery E, Flora J. Seventh graders' self-reported exposure to cigarette marketing and its relationship to their smoking behavior. *Am J Public Health* 1996;86:1216-21.
- 8 Warner KE, Ernster VL, Holbrook JH, et al. Promotion of tobacco products: issues and policy options. *J Health Politics Policy Law* 1986;11:367-92.
- 9 Kotler P. *Marketing management: analysis, planning, implementation, and control*, 7th ed. Englewood Cliffs, New Jersey: Prentice Hall, 1991.
- 10 Peter JP, Olson JC. *Consumer behavior and marketing strategy*, 2nd ed. Boston, Massachusetts: Irwin, 1990.
- 11 Flay BR. Youth tobacco use: risks, patterns, and control. In: Slade J, Orleans CT, eds. *Nicotine addiction: principles and management*. New York: Oxford University Press, 1993.
- 12 Stern RA, Prochaska JO, Velicer WF, et al. Stages of adolescent cigarette smoking acquisition: measurement and sample profiles. *Addict Behav* 1987;12:319-29.
- 13 Epstein S, Grunberg NE, Lichenstein E, et al. Smoking research: basic research, intervention, prevention, and new trends. *Health Psychol* 1989;8:705-21.
- 14 Rimpelä MK, Aaro LE, Rimpelä AH. The effects of tobacco sales promotion on initiation of smoking. *Scand J Soc Med* 1993;49(suppl):5-23.
- 15 Solomon MR. The role of products as social stimuli: a symbolic interactionism perspective. *J Consumer Res* 1983;10:319-29.
- 16 DiFranza JR, Eddy JJ, Brown LF, et al. Tobacco acquisition and cigarette brand selection among youth. *Tobacco Control* 1994;3:334-8.
- 17 Giglio, J. *How tobacco company advertising influences minors to use tobacco: A summary of independent research and internal industry documents*. Washington DC: American Cancer Society, 1996.
- 18 Pierce JP, Farkas A, Evans N, et al. *Tobacco use in California 1992. A focus on presenting uptake in adolescents*. Sacramento, California: California Department of Health Services, 1993.
- 19 Pierce J, Choi W, Gilpin E, et al. Validation of susceptibility as a predictor of which adolescents take up smoking in the United States. *Health Psychol* 1995;15:355-61.
- 20 Unger JB, Johnson CA, Stoddard JL, et al. Identification of adolescents at risk for smoking initiation: validation of a measure of susceptibility. *Addict Behav* 1997;22:81-91.
- 21 Unger J, Johnson CS, Rohrbach LA. Recognition and liking of tobacco and alcohol advertisement among adolescents: relationships with susceptibility to substance use. *Prev Med* 1995;24:461-6.
- 22 Coeytaux R, Altman DG, Slade J. Tobacco promotions in the hands of youth. *Tobacco Control* 1995;4:253-7.
- 23 Altman DG, Levine DW, Coeytaux R, et al. Tobacco promotion and susceptibility to tobacco use among adolescents aged 12 through 17 years in nationally representative sample. *Am J Public Health* 1996;86:1590-3.
- 24 Evans N, Farkas A, Gilpin E, et al. Influence of tobacco marketing and exposure to smokers on adolescent susceptibility to smoking. *J Natl Cancer Inst* 1995;87:1538-45.
- 25 Rogers T, Feighery E, Tencati E, et al. Community mobilization to reduce point-of-purchase advertising of tobacco products. *Health Educ Q* 1995;22:427-42.
- 26 Flay, BR. What do we know about social influences approach to smoking prevention? Review and recommendations. (NIDA Research Monograph No 63.) In: Bell C, Battjes R (eds). *Prevention research: deterring drug use among children and adolescents*. Washington, DC: US Government Printing Office, 1985.
- 27 Sussman, S. Two social influence perspectives of tobacco use development and prevention. *Health Educ Res* 1989;4:213-23.
- 28 Liao TF. *Interpreting probability models*. Thousand Oaks, California: Sage, 1994.
- 29 Agresti, A. *Categorical data analysis*. New York, New York: Wiley, 1990.
- 30 Conrad KM, Flay BR, Hill D. Why children start smoking cigarettes: predictors of onset. *Br J Addict* 1992;87:171-24.
- 31 Johnston LD, O'Malley PM, Bachman JG. *National survey results on drug use from the Monitoring the Future Study, 1975-1993. Vol 1: Secondary school students*. Rockville, Maryland: Department of Health Human Services, Public Health Service, 1994. (NIH Publication No 94-3809.)